**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Density Worksheet**

The density of water is 1g/mL or 1g/cm3. An object with a density less than water naturally floats. An object will sink if its density is greater than the density of water.

The formula for density is D=m/V where m is mass and V is volume. Mass is a measure of the amount of matter in an object or material. Volume is a measure of how much space an object or material occupies.

1. A rock has a mass of 210 grams and occupies a volume of 70 cm3. What is its density?

1. An unknown liquid occupies a volume of 5 ml and has a mass of 40 grams. Find its density.

1. How does the volume occupied by a cubic centimeter (cm3) compare with the volume occupied by a milliliter (ml)? Hint: Use the first sentence at the top to help you answer.
2. A rectangular solid of unknown density is 5 meters long, 2 meters high and 4 meters wide.  The mass of this solid is 300 grams. Given this information for this homogeneous (alike throughout) material, calculate its density, using the formula V=lwh.

5 m

4 m

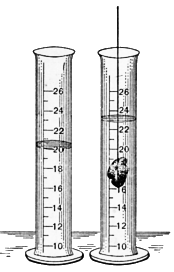
2 m

1. A rock occupies a volume of 20 cm3 and has a mass of 54 grams. Find the density of this rock.

1. A rock has a density of 4 g/ml and a mass of 16 grams.  What is the volume this rock occupies?

1. An unknown substance from planet X has a density of 10 g/ml.  It occupies a volume of 80 ml.  What is the mass of this unknown substance?

1. Water has a density of 1.0 g/mL and ocean water has a density of 1.025 g/mL. Why are they different?
2. A cube made of an unknown material has a height of 9 cm.  The mass of this cube is 3,645 grams. Calculate the density of this cube given this information. Hint: a cube has 6 equal sides



1. A graduated cylinder has 20 ml (cm3) of water placed in it. An irregularly shaped rock is then dropped in the graduated cylinder and the volume of the rock and water in the cylinder now reads 30 ml (cm3). The mass of the rock dropped into the graduated cylinder is 23 grams.
   1. Find the volume of the rock dropped into the graduated cylinder.
   2. Find the density of the rock dropped into the graduated cylinder.

Use the graph below to answer the following questions:

25

20

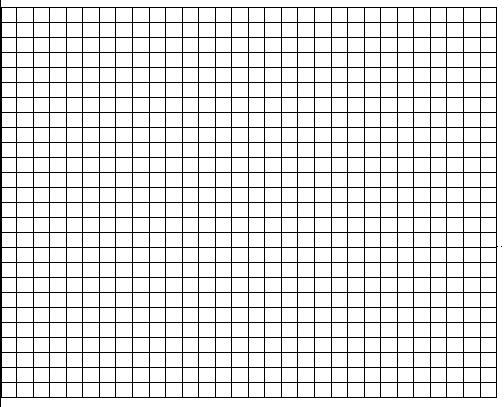
15

10

5

0

Mass (g)



C

0 5 10 15 20 25 30

B

A

Volume (cm3)

1. What is the density of object A? Does it sink or float in water?
2. What is the density of object B? Does it sink or float in water?
3. What is the density of object C? Does it sink or float in water?

**Use the table below to answer the following questions:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Substance | Density at 20 ◦C |  | Substance | Density at 20 ◦C |
| Wood | 0.70 g/cm3 |  | Rubber | 1.34 g/cm3 |
| Corn oil | 0.92 g/cm3 |  | Corn Syrup | 1.38 g/cm3 |
| Water | 1.00 g/cm3 |  | Copper | 8.80 g/cm3 |

1. An object with a mass of 24g and a volume of 32mL is most likely what substance?
2. What is the only object in the table that would sink in corn syrup?
3. What is the mass of 100 mL of corn oil?
4. What is the volume of 35g of copper?